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COMMITTEE OF EXPERTS ON THE TRANSPORT OF DANGEROUS GOODS

Sub-Committee of Experts on the Transport of Dangerous Goods

REPORT OF THE SUB-COMMITTEE OF EXPERTS ON ITS SEVENTEENTH SESSION

(Geneva, 6-15 December 1999)

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REPORT

ATTENDANCE

1. The Sub-Committee of Experts on the Transport of Dangerous Goods held its seventeenth session from 6 to 15 December 1999 with Mr. S. Benassi (Italy) as Chairman and Mr. F. Wybenga (United States of America) as Vice-Chairman.

2. Experts from the following countries took part in the session: Argentina; Australia; Belgium; Brazil; Canada; China; Czech Republic; France; Germany; Italy; Japan; Mexico; Netherlands; Norway; Russian Federation; South Africa; Spain; Sweden; United Kingdom and United States of America.

3. Under rule 72 of the rules of procedure of the Economic and Social Council, observers from the following countries also took part: Austria; Bahamas; Finland; Switzerland and Tunisia.

4. Representatives of the following specialized agencies were present: International Civil Aviation Organization (ICAO); International Labour Office (ILO).

5. The following intergovernmental organizations were represented: European Commission (EC); Intergovernmental Organization for International Carriage by Rail (OTIF) and Organization for Economic Co-operation and Development (OECD).

6. Representatives of the following non-governmental organizations took part in the discussion of items of concern to their organizations: European Liquefied Petroleum Gas Association (AEGPL); International Association of the Soap, Detergent and Maintenance Products Industry (AISE); European Chemical Industry Council (CEFIC); Compressed Gas Association (CGA); European Committee of Paint, Printing Ink Artists Colours Manufacturers Associations (CEPE); Chemical Specialities Manufacturers Association (CSMA); Standing Committee of European Doctors (CP); European Cylinder Makers Association (ECMA); European Fertilizer Manufacturers' Association (EFMA); European Industrial Gases Association (EIGA); Federation of European Aerosol Associations (FEA); International Federation of Freight Forwarders Associations (FIATA); Hazardous Materials Advisory Council (HMAC); International Air Transport Association (IATA); International Confederation of Container Reconditioners (ICCR); International Confederation of Drums Manufacturers (ICDM); International Council of Intermediate Bulk Container Associations (ICIBCA); International Confederation of Plastics Packaging Manufactuers (ICPP); International Electrotechnical Commission (IEC); International Fibre Drum Institute (IFDI); International Road Transport Union (IRU); International Organization for Standardization (ISO); International Tank Container Organization/Tank Container Association (ITCO/TCA); International Union of Railways (IUC); the Programme national de prévention de lutte et d'assistance humanitaire aux victimes des catastrophes naturelles (PRONAPLUCAN) and the European Secretariat of Manufacturers of Light Metal Packagings (SEFEL).

ADMINISTRATIVE MATTERS

Human resources

7. The Sub-Committee noted with satisfaction that the two vacant posts in the Dangerous Goods and Special Cargoes Section had finally been filled.

Report of the Secretary-General on the work of the Committee of Experts on the Transport of Dangerous Goods (document E/1999/43)

8. The Sub-Committee noted that the report had been discussed by the Council at its 1999 substantive session and that the two draft resolutions prepared by the Committee (see ST/SG/AC.10/25, annex 6) had been adopted without amendments on 30 July 1999 at the forty-sixth plenary meeting (resolution 1999/62) and on 26 October 1999 at the forty-eighth plenary meeting (resolution 1999/65).

9. The Sub-Committee agreed to come back to the question of the reconfiguration of the Committee under agenda item 6.

10. The representative of ILO expressed his organization's satisfaction at the adoption of resolution 1999/65 and thanked the Committee of Experts on the Transport of Dangerous Goods and the Sub-Committee for their constructive attitude regarding the elaboration of a new structure to permit the establishment of a Sub-Committee on matters concerning the globally harmonized system of classification and labelling of chemicals.

ADOPTION OF THE AGENDA (ST/SG/AC.10/C.3/33 and Add.1 and 2)

11. The Sub-Committee adopted the provisional agenda prepared by the secretariat after amending it to include late submissions (see informal documents INF.1 and INF.2) and, at the request of the expert from Argentina, document ST/SG/AC.10/C.3/R.707.

12. The Sub-Committee agreed that documents ST/SG/AC.10/C.3/1999/64 and -/C.3/1999/82 could be discussed under agenda item 6 (c) rather than under items 2 (a) and 5 (a), when the experts on aerosols would be present.

DEVELOPMENT OF PROVISIONS FOR THE TRANSPORT OF GASES

Documents: ST/SG/AC.10/C.3/32/Add.1 (Report of the in-session working group held during the sixteenth session of the Sub-Committee)

Informal documents: INF.10 (United Kingdom)
INF.14 (ISO)
INF.15 (United States of America)
INF.18 (Germany)

13. After the introduction of the informal documents by their authors in turn, the Sub-Committee discussed at length the basic question of how the requirements of Chapter 6.2 should be presented. The working group had agreed that the chapter in question should contain general requirements for design and construction in order to define the regulatory framework, to which would be added a list of standards considered acceptable by the Committee.

14. The expert from the United States of America questioned this approach; he considered that it was unnecessary to reproduce the essential requirements in this chapter since they were already contained in detail in the standards. He considered that defining the essential requirements, leaving the competent authorities the responsibility of specifying which standards could be applied in order to comply with them, was not conducive to harmonization in the context of international transport and would not improve the present situation. He would therefore prefer a reference to a single standard for each type of pressure receptacle which would guarantee a uniform level of safety acceptable to all the competent authorities.

15. After lengthy discussion, the Chairman summed up the Sub-Committee's position as follows:

- it was understood that the application of the ISO standards was a means of complying with the requirements of the United Nations Model Regulations;
- other standards could be applied provided that the Committee recognized that they ensured an equivalent or higher level of safety;
- when no standard existed to which the Model Regulations could refer, the requirements should be included in the Model Regulations;
- when satisfactory standards existed, it must still be determined whether it was necessary to include the essential requirements (in order to establish a minimum safety level to be met by the standardization organizations in their future work) or whether they could be omitted and only those standards deemed acceptable prescribed.

16. The consideration of the documents was entrusted to a working group which met from 6 to 9 December with Mr. H. Puype (EIGA) as chairman.

17. The chairman of the working group introduced the group's report (informal document INF.43) (see annex 1). The revised texts resulting from this work would be the subject of an addendum to the present report (ST/SG/AC.10/C.3/34/Add.1) and delegations wishing to submit proposals concerning these texts were requested to do so officially before the deadline for the submission of documents (14 April 2000) for the next session, when the working group would meet again.

TRANSPORT IN BULK IN PORTABLE TANKS AND FREIGHT CONTAINERS

(a) Miscellaneous draft amendments to Chapters 4.2 and 6.6

Documents: ST/SG/AC.10/1999/3 (Argentina)
ST/SG/AC.10/C.3/1999/66 (UIC)

Informal document: INF.23 (UIC)

18. With reference to the first comment by the expert from Argentina on the definitions of maximum allowable working pressure (MAWP) and design pressure in paragraph 6.7.2.1, the representative of UIC pointed out that there were two different systems in the Model Regulations to determine the test pressure. It was either possible to use the minimum test pressures given in 4.2.4.2.6 for specific substances, which was the most practical solution for tank-container transport operators, or the definitions of 6.7.2.1. could be used as a basis. According to these definitions, it was possible to establish a correlation between the design pressure and the test pressure and between the MAWP and the test pressure, and that for professionals of transport in tanks who wished to carry a maximum of different products in their tanks it would be more practical to establish the MAWP and the design pressure by means of a formula based on the minimum test pressure for these products rather than according to the physical characteristics of each substance to be carried. The definitions of 6.7.2.1 could be used for those tanks intended for the carriage of a specific product with known characteristics.

19. Some delegations supported the UIC opinion, but others considered that this proposal should be the subject of an official document comprising detailed arguments and specific proposals for the amendment of the text to enable the authorities responsible for implementing these requirements to evaluate the consequences.

20. The expert from Argentina said that discussion with other experts on the Sub-Committee had enabled him to resolve the other problems of interpretation raised in his document.

(b) New provisions for the transport of solid substances in tanks

Document: ST/SG/AC.10/C.3/1999/93 (Germany)

21. The expert from Germany said that the proposals contained in section 2.1 of the document should incorporate the provisions of the IMDG Code for the carriage in tanks of powdery or granular solid substances. The proposals were adopted with some amendments (see annex 2). They should also be applied to pasty solids which were not considered to be liquids and were carried in tanks.

22. The Sub-Committee agreed that the provisions should also be prescribed for elevated temperature substances; the proposals contained in section 2.2 of the document submitted by Germany were, however, referred to an informal working group for preliminary consideration.

23. The Sub-Committee adopted the texts submitted by the informal group (for paragraphs 6.7.2.1, 6.7.2.2.17 and 6.7.2.5.12 to 6.7.2.5.15) (informal document INF.37) (see annex 2). The expert from Germany was asked to check the absolute vapour pressure data for the text in square brackets in 6.7.2.1 (i) and the type (IP 56) to be referred to in 6.7.2.5.15.

(c) New provisions for the transport of solid substances in bulk in freight containers

Document: ST/SG/AC.10/C.3/1999/92 (Germany)

24. A large number of delegations welcomed the work carried out by the expert from Germany which provided a good basis for the work of preparing the new provisions.

25. In view of the numerous detailed comments, the expert from Germany offered to organize an inter-sessional working group on the question.

26. Several delegations considered that certain substantive issues should be dealt with first, namely:

- specification of the substances to be authorized for carriage in freight containers;
- determination of whether there was a need to prescribe specific provisions for the construction, tests and certification of containers intended for the carriage of solid dangerous goods in bulk, in view of the fact that such carriage was already authorized for certain substances in containers meeting the specifications of ISO and UIC standards and the provisions of the Convention on Safe Containers (CSC); if necessary, provision to be made for a link with CSC;
- scheduling of cooperation with the International Atomic Energy Agency (IAEA) for radioactive material;
- definition of the notion of carriage in bulk in view of the different interpretations of this term in inland transport overland and in maritime transport.

27. Although some delegations admitted that the carriage in bulk of dangerous solid substances in bulk in vehicles or freight containers could be justified under specific regional conditions, they considered that the large-scale international transport of such substances, particularly in open freight containers, should be restricted to a few special cases since carriage in bulk in tanks offered much better guarantees of safety.

TRANSPORT OF DANGEROUS GOODS DOCUMENTATION

Documents: ST/SG/AC.10/C.3/1998/20 (United Kingdom)
ST/SG/AC.10/C.3/1999/58 and -/Add.1 (United States of America)
ST/SG/AC.10/C.3/1999/67 (UIC)
ST/SG/AC.10/C.3/1999/69 (CEPE)
ST/SG/AC.10/C.3/1999/91 (Netherlands)

Informal documents: INF.5 (CEPE)
INF.16 (United States of America)

28. The Sub-Committee welcomed the work carried out in particular by CEPE and the United States of America on the revision of Chapter 5.4 of the Model Regulations.

29. The question had arisen as to whether an in-depth revision of this chapter should be made during the current biennium or a revision with a view to harmonizing the various existing modal regulations.

30. The expert from the United Kingdom expressed the hope that an in-depth revision would be made, in accordance with his document ST/SG/AC.10/C.3/1998/20, following an analysis of the real utility of the present requirements, bearing in mind the imperatives of safety. The work done by CEPE was a useful starting point. These documents, however, should rather be studied by an informal working group which FIATA had proposed to convene.

31. The expert from the United States of America considered that the present requirements stemmed from well-justified safety imperatives and that there was no need to call them into question again without detailed justification on the sole basis of surveys of transport document users concerning their utility. He preferred a revision of the wording so as to harmonize the various requirements of current modal regulations, as proposed in his document.

32. It was, however, pointed out that the proposal by the United States of America introduced a large number of new requirements which did not exist in the current international regulations, such as, for example, that of an emergency telephone number in the transport document.

33. The expert from the United States said that the new requirements on emergency response in his document could be the subject of separate proposals. The Sub-Committee therefore made an informal drafting group, which met between meetings, responsible for considering the proposal for Chapter 5.4 prepared by the United States of America.

34. The representative of CEFIC expressed disappointment at the procedure adopted since he would like an in-depth revision of this chapter in order to make possible an international multimodal transport operation in which the particulars to be included in the transport document would be the same whatever transport mode was used or whatever the country through which the transport passed.

35. With reference to the sequence of information to be included in the transport document (ST/SG/AC.10/C.3/1999/67, -/C.3/1999/91 and INF.16), a matter of frequent debate between those in favour of information beginning with the official shipping name as currently prescribed in the Model Regulations, the IMDG Code and the ICAO Technical Instructions, and those in favour of putting the UN number first (as in ADR and RID) since it was more easily comprehensible in international transport operations between countries using different languages, opinions remained very divided. After a close vote, it was decided to keep to the currently prescribed sequence.

36. The expert from Belgium said that the present problems of consignors derived from the fact that different sequences were prescribed. In his opinion, the sequence was not of great importance since the important facts were grouped together in any case; he would prepare a proposal removing the requirement of a given sequence, and this should solve the practical problems.

37. The proposal by UIC concerning the specification of the subsidiary risk for Class 2 in document ST/SG/AC.10/C.3/1999/67 received no support and was withdrawn.

Informal document: INF.48 (Report of the drafting group on documentation)

38. The Sub-Committee agreed that the text developed by the drafting group should be annexed to the report for further consideration at the next session (see annex 3).

MISCELLANEOUS DRAFT AMENDMENTS TO THE MODEL REGULATIONS ON THE TRANSPORT OF DANGEROUS GOODS

Listing and classification

Solvent-free acetylene

Document: ST/SG/AC.10/C.3/1999/30/Rev.1 (Germany)

39. The proposed new entry for solvent-free acetylene was adopted subject to the inclusion of appropriate packing requirements in packing instruction P200 by the working group on gas cylinders and multiple element gas containers (MEGCs) (see annex 1, para. 19 and annex 2).

Cargo transport unit under fumigation

Document: ST/SG/AC.10/C.3/1999/52 (Belgium)

40. Following discussions at the previous session (see ST/SG/AC.10/C.3/32, paras. 40-41 and Addendum 2), it was decided to amend the English version of the proper shipping name of UN No. 3359 ("fumigated unit") and add a special provision (see annex 2). The French name would remain unchanged.

Ammonium nitrate entries

Document: ST/SG/AC.10/C.3/1999/59 (Canada, United States of America and EFMA)

Informal documents: ST/SG/AC.10/C.3/1999/59/Corr.1 (United States of America)
INF.4 (EFMA)

41. The Sub-Committee agreed that the number of entries for ammonium nitrate and ammonium nitrate fertilizer could be cut back (see also ST/SG/AC.10/C.3/32, para.56), and more particularly that entries UN Nos. 2067, 2068, 2069 and 2070 should be replaced by a single entry, which would be numbered UN No. 2067, since this was the entry currently most used.

42. The Sub-Committee also decided to delete entry UN No. 0223 since mixtures of this description were not used as fertilizers.

43. The expert from Belgium opposed the deletion of n.o.s. entry 2072 (Division 5.1), since this entry had special segregation requirements in the IMDG Code.

44. The representative of EFMA and the expert from Germany said that, in view of the applicable procedures and standards for their manufacture, ammonium nitrate fertilizers with more than 0.4% combustible substances were not produced. It was therefore decided that entry 2072 should also be deleted.

45. The Sub-Committee further agreed that the contents of special provision BBB, amended in accordance with informal document INF.4, should be transferred to special provision CCC which applied to the new entry 2067.

46. Opinion was divided, however, regarding special provision AAA, since some experts considered that series 1 and 2 tests were not appropriate for ammonium nitrate fertilizers.

47. It was also proposed that the descriptive text of entry 0222 should be replaced by the phrase "exhibiting explosive properties", without reference to its composition. Some experts considered, however, that the reference to the composition made it possible to avoid testing and was therefore more practical.

48. The provisionally agreed changes are shown in annex 4. The Sub-Committee invited the authors of the proposal to submit proposals on outstanding issues.

Hydrazine hydrate and hydrazine, aqueous solution

Document: ST/SG/AC.10/C.3/1999/74 (Canada)

49. The Sub-Committee maintained the decision taken at the last session to make provision for three packing groups. In order to solve the problem raised by the expert from Canada, it was decided to delete "HYDRAZINE HYDRATE, or" in the description and to include the name of the substance in lower case in the index, in a reference to aqueous solutions of hydrazine (see annex 2).

Generic chlorosilane entries

Document: ST/SG/AC.10/C.3/1999/75 (Canada)

50. The expert from Canada withdrew the proposal.

51. The representative of CEFIC expressed regret at this decision since he considered that the two entries 3361 and 3362 adopted at the previous session raised a real problem (see ST/SG/AC.10/C.3/32, paras. 47-51). He said that he would submit a proposal at the next session.

Desensitized explosives

Documents: ST/SG/AC.10/C.3/1999/80 (United Kingdom)
ST/SG/AC.10/C.3/1999/85 (United States of America)

52. The Sub-Committee agreed that it would be advisable to revise the entries for desensitized explosives.

53. Several experts supported the second solution put forward by the United Kingdom, which was to create new entries to cover cases in which special provisions 15 and 18 were currently applied.

54. The expert from the United States of America said that he had no wish to increase the number of entries, particularly as he was not sure that all the substances were still being produced or carried in large quantities, something that should be checked. He noted, however, that substances could not be carried under n.o.s. entries and that UN numbers were therefore necessary if they were actually carried.

55. With reference to paragraph 3 (a) of document ST/SG/AC.10/C.3/1999/85, the expert from Norway said that the three substances covered by UN Nos. 2555, 2556 and 2557 were solids and not liquids.

56. Following the discussion, the expert from the United Kingdom said that he would prepare a new document for the next session which would include all the amendments to be made.

Transport of materials capable of undergoing uncontrolled polymerization (stabilization by means of temperature control)

Document: ST/SG/AC.10/C.3/1999/81 (United Kingdom)

57. The Sub-Committee adopted in principle the proposal by the United Kingdom to ensure that the proper requirements were applied when substances which should be carried in "stabilized" form were stabilized by maintaining their temperature below 55 °C during carriage.

58. Several experts said that the special provisions proposed would not always be necessary since some of the substances listed were never carried under temperature-controlled conditions. They would therefore prefer to transfer these provisions to the general section.

59. The expert from the United Kingdom proposed to rearrange the texts to take the comments into account. For the texts adopted see annex 2.

Pressure test for lighters and lighter refills

Documents: ST/SG/AC.10/C.3/1999/86 and -/Add.1 (China)

Informal documents: INF.8 (United Kingdom for the European Federation of Lighter Manufacturers)
INF.33 (China)

60. The Sub-Committee agreed by consensus that a pressure test should be required for lighters and lighter refills. It noted, however, that the standard ISO 9994:1995 already existed on safety specifications for lighters, including, inter alia, an internal pressure test similar to that proposed by China but with different criteria.

61. The expert from China was asked to prepare a new proposal which would contain amendments to special provision 201 and Chapter 6.2 in order to prescribe an internal pressure test in keeping with the ISO standard, and possibly also the other tests covered by this standard if it was considered necessary.

62. The expert from China accepted the Sub-Committee's request.

Amendment of special provision 216

Document: ST/SG/AC.10/C.3/1999/89 (United States of America)

63. The proposed amendment to special provision 216 was adopted with slight modifications (see annex 2).

Airbag inflators

Document: ST/SG/AC.10/C.3/1999/94 (Germany)

64. The expert from Germany requested the postponement of the discussion on this document until the next session.

Lithium batteries

Document: ST/SG/AC.10/C.3/1999/73 (Canada/Japan)

Informal documents: INF.7 (Canada/Japan)
INF.20 and INF.21 (France)

65. A small informal group met to discuss document ST/SG/AC.10/C.3/1999/73 prepared by the correspondence group established at the previous session (see ST/SG/AC.10/C.3/32, para. 58). The informal group concluded that additional work was required and, noting that work by correspondence was less efficient than in a working group, it expressed a wish for an informal working group to meet to prepare a new document for the next session.

66. The expert from the United States of America said that he saw no need for such rapid amendment of the requirements adopted at the last session of the Committee, and wondered whether the work could not be spread over the next biennium, so as to avoid having to convene an informal group to complete the work in 2000. The expert from Canada shared this point of view.

67. The expert from France on the contrary considered that it was important to complete as soon as possible the work contained in the mandate given to the correspondence group at the previous session. The lithium batteries industry was in full expansion and numerous research programmes had been undertaken, in particular for the use of such batteries in electric cars; the trend of these programmes depended heavily on the decisions to be taken by the Committee.

68. The Chairman said that it was for the correspondence group to organize its work as it thought fit, provided that if it submitted a document for the next session it did so in accordance with the mandate it had been given at the last session.

Organic peroxides/Self-reactive substances

Informal document: INF.3 (Finland/CEFIC)

69. The Sub-Committee noted that a proposal concerning transport of peroxyacetic acid, 41% with water, in tanks would be submitted to the next session.

Chapter 3.4 (Limited quantities)

Documents: ST/SG/AC.10/C.3/1999/56 (Australia)
ST/SG/AC.10/C.3/1999/65 (Belgium)
ST/SG/AC.10/C.3/1999/84 (United Kingdom)

Informal documents: INF.11 (United Kingdom)
INF.19 (Belgium)

70. The experts from Belgium and the Netherlands said that there was no need to endeavour systematically to harmonize modal requirements for the transport of dangerous goods packed in limited quantities since the nature of transport operations varied according to the mode of transport, e.g. carriage by container in full loads in maritime transport as opposed to transport for distribution on land.

71. Most of the experts did not share this opinion and considered that the Sub-Committee should endeavour to harmonize existing requirements so that the Model Regulations would contain requirements acceptable to all transport modes.

72. In ST/SG/AC.10/C.3/1999/56, the expert from Australia proposed to increase the hazard communication elements contained in outer package marking and to limit the total quantity of "limited quantities" of dangerous goods on transport units allowed before placarding and documentation would be required. After general discussion, in which some support was expressed by some delegations, the expert from Australia offered to bring a simpler proposal to the next Sub-Committee session taking into account comments made by the experts.

73. After a general discussion based on document ST/SG/AC.10/C.3/1999/56, submitted by Australia, the Sub-Committee preferred to take a decision on the proposals contained in document ST/SG/AC.10/C.3/1999/84 submitted by the United Kingdom which seemed closer to the various modal requirements currently in force, and simpler.

74. For the marking of packages, the Sub-Committee decided that, on the basis of the proposals by the expert from Belgium in ST/SG/AC.10/C.3/1999/65 and INF.19, the UN number(s) of the substances contained in them should be marked on the package within a diamond, which was preferred (following a vote) to a rectangle.

75. A verbal proposal by the expert from Germany to put the letters "LQ" inside the diamond instead of the UN numbers when there were several substances was rejected.

76. The Sub-Committee also confirmed, following a vote, that all the UN numbers must be included.

77. The proposal for a section 3.4.9 concerning the carriage of consumer commodities was tantamount to making the present provisions of paragraph 3.4.8 more restrictive, and took its inspiration from the ICAO Technical Instructions (special identification number in Class 9).

78. Several experts considered that the consumer commodities in question were neither more nor less than dangerous goods packed in limited quantities. They feared that industry might take advantage of the duplication of provisions to select the least stringent among them, i.e. those of section 3.4.9. They could not see any advantage in terms of safety in the Class 9 label and the special UN number since they contributed no information to the emergency services regarding the nature of the danger.

79. Other experts noted that the present provisions of paragraph 3.4.8 exempted such packages from labelling and the marking of the UN number, and from the transport document; these derogations were particularly useful for express consignments of current consumer commodities, such as perfumes, where consignors had difficulty in meeting the requirements for the UN number and finding the pertinent label. The requirement of a Class 9 label with a single UN number covering all these products was more restrictive than the present provisions but was easily applied in this type of consignment.

80. After a lengthy discussion, the section 3.4.9 proposal was not kept. The question was then raised as to whether present section 3.4.8 was to be deleted, as appeared logical to a number of experts in view of the discussion and the decision on section 3.4.9. It was decided, however, to keep the present section 3.4.8 as it stood since the aim of the United Kingdom's proposal was not to delete it.

Document: ST/SG/AC.10/C.3/1999/60 and -/Corr.1 (United States of America)

81. The proposal to extend the provisions of Chapter 3.4 to certain substances of Class 3, Packing group I, was adopted, except in the case of UN No. 1993 (see annex 2).

82. All the other proposals to harmonize the various modal requirements for the application of Chapter 3.4 to substances of Class 3 (Packing group II), Division 4.1, Division 5.1, Division 6.1 and Class 8 (Packing groups II and III) and Class 9 (Packing group III) were adopted (see annex 2).

83. For Class 9, Packing group II, some experts considered that the provisions of Chapter 3.4 could not be used in practice because of the nature of the product (e.g. castor beans) or were not advisable (e.g. PCBs or asbestos).

84. After consideration on a case-by-case basis, the Sub-Committee agreed to apply limits of 1 kg and 1 l for these substances, except for castor beans (UN 2969) (5 kg) and UN Nos. 2990, 3072, 3090 and 3091 for which such provisions were not necessary (see annex 2) .

Document: ST/SG/AC.10/C.3/1999/63 (United States of America)

85. The Sub-Committee adopted this proposal concerning the application of Chapter 3.4 to chemical kits (see annex 2).

Packagings

Periodic tests for IBCs

Document: ST/SG/AC.10/C.3/1999/3 (Argentina)

Informal document: INF.32 (Argentina)

86. The Sub-Committee took note of the communication submitted by the expert from Argentina concerning deadlines for the periodic testing of IBCs and if possible consequences for the transport of hazardous waste under the Basel Convention.

Drafting changes to Chapter 6.5

Document: ST/SG/AC.10/C.3/1999/33/Rev.1 (ICIBCA)

87. After consideration by a drafting group, the Sub-Committee adopted a number of drafting changes to Chapter 6.5 (see annex 2).

Salvage packagings

Document: ST/SG/AC.10/C.3/1999/51 (HMAC)

88. Some experts feared that allowing the use of salvage packagings for the carriage of packages the packaging of which did not conform to requirements would lead to misuse.

89. Other experts pointed out that in view of the cost of such packagings, there was no reason to fear misuse. The use of salvage packagings in any case was sometimes the only solution for the completely safe transport of older packages of dangerous products such as pesticides, when the packaging, even when it was in good condition, did not comply with the requirements in force.

90. A proposal by Belgium requiring that in such cases carriage should only be permitted to the nearest centre where disposal or recovery is possible was not adopted.

91. The proposal by HMAC was adopted as it stood (see annex 2).

IBCs for substances liable to become liquid during transport

Document: ST/SG/AC.10/C.3/1999/53 (Belgium)

92. The proposal to add to the list of IBCs which were not to be used for substances liable to become liquid during transport was adopted (see annex 2).

Transport of ammonia solution in IBCs

Document: ST/SG/AC.10/C.3/1999/55 (Norway and Sweden)

93. Although the proposal by ICIBCA not to impose vapour pressure limits on the use of IBCs for the carriage of liquids had not been adopted at the previous session (see ST/SG/AC.10/C.3/32, para. 78), the experts from Norway and Sweden requested a derogation for the transport of ammonia solutions in concentrations of 25% or less in rigid or composite plastics IBCs (31H1, 31H2 and 31HZ1), in view of the fact that such transport had been authorized in their countries for many years without causing any incidents. Should the prohibition be kept in the Model Regulations, the practice would have to stop, to the detriment of their industry, since it would no longer be justifiable in the current European legal context.

94. Opinions were divided on the issue, but the Sub-Committee finally adopted the proposal (see annex 2).

Reprocessing of intermediate bulk containers (IBCs)

Documents: ST/SG/AC.10/C.3/1999/87 (ICPP)
ST/SG/AC.10/C.3/1999/95 (ICIBCA)

Informal document: INF.9 (ICPP)

95. The Sub-Committee noted that CEFIC, ICCR, ICIBCA, ICPP and ICDM would meet in Brussels (Belgium) in January 2000 to discuss the question of the maintenance of IBCs on the basis of these documents and that they would submit a new proposal on behalf of the industry at the next session. The meeting would be opened to other participants.

96. The expert from the United Kingdom suggested that when studying the question of the maintenance of IBCs, this group should bear in mind the current repair and servicing provisions and the need for the IBC and all component parts to continue to meet the specifications for which the design type had been tested.

Vibration tests for steel drums 1A1, 1A2, 1B1, 1B2, 1N1 and 1N2

Document: ST/SG/AC.10/C.3/1999/71 (Spain)

97. The representative of SEFEL said that the proposal by Spain for the inclusion of an additional vibration test should have been accompanied by accident statistics showing that this test was necessary.

98. Several experts shared this viewpoint, recalling that vibration tests were costly and difficult to put into practice and therefore difficult to apply in many countries, and that the Sub-Committee had so far considered that the vibration test was unnecessary.

99. Other experts considered, however, that since a requirement existed to the effect that packagings should be resistant to vibrations caused during carriage, this should be demonstrated by an appropriate test.

100. Following a majority vote, the Sub-Committee decided that, in principle, at some time in the future, a vibration test should be included in the Model Regulations, on the understanding that the forms the test would take and the criteria for it were still to be defined and should take account of pertinent ISO standards and existing vibration test standards. The expert from Spain would work on the vibration test with the cooperation of other countries, coordinating their work.

Minimum wall thickness of steel drums

Document: ST/SG/AC.10/C.3/1999/72 (Spain)

Informal documents: INF.6 (ICDM)

101. The expert from Spain said that he had received numerous comments on his proposal and that he would like more time to study them. He withdrew his document and would submit a new proposal at the next session after having discussed these comments with the manufacturers.

Packing instructions P601, P401 and P402

Document: ST/SG/AC.10/C.3/1999/78 (France)

Informal document: INF.28 (France)

102. The expert from France took note of the comments by the other delegations, as follows:

P601: The periodic test pressure was considered unrealistic; the visual inspection would not be necessary either as the consignor would have anyway to check the good condition of the packaging each time before use;

P401 and P402: Certain experts approved the principle of the proposal; however, additional time was deemed necessary to study all its consequences.

103. He said that he would submit a new proposal at the next session.

Unpackaged articles

Document: ST/SG/AC.10/C.3/1999/79 (United Kingdom)

104. The Sub-Committee agreed to introduce a new section 4.1.3.8 for unpackaged articles of classes other than Class 1 on the basis of the proposal by the United Kingdom (see annex 2).

Marking of the date of manufacture on IBCs, large packagings and portable tanks

Document: ST/SG/AC.10/C.3/1999/98 (South Africa)

Informal document: INF.29 (Argentina)

105. The proposal by South Africa to replace the present marking requirements (the month followed by the year) by marking in accordance with ISO standards (year, month, day) was not adopted since the present system was well established.

106. The proposal by Argentina to mark the last three figures of the year instead of two after the year 2000 was not considered to be necessary, since no problems were envisaged in this context with the transition to the year 2000.

Top lift test for flexible large packagings

Documents: ST/SG/AC.10/C.3/1999/90 and -/Add.1 (China)

107. The proposal by China was adopted (see annex 2).

Packing instruction P002, special provision PP11

Informal document: INF.13 (United Kingdom)

108. The proposed amendment was adopted (see annex 2). The question of the application of special provision PP11 to UN No. 1309 was not discussed.

Infectious substances

Classification and packaging of diagnostic specimens

Document: ST/SG/AC.10/C.3/1999/83 (United Kingdom and Germany)

109. The Sub-Committee adopted the principle of the approach presented in this proposal, namely, a UN number and a packing instruction for diagnostic specimens. The experts from Germany and the United Kingdom were asked to submit a new proposal, taking into account the comments made.

Miscellaneous

Definition of the term "liquid"

Document: ST/SG/AC.10/C.3/1999/54 (Belgium)

110. This proposal was adopted (see annex 2).

Labelling of LPG cylinders and gas cartridges

Document: ST/SG/AC.10/C.3/1999/70 (AEGPL)

111. The proposal permitting the use of the contrasting background colour of cylinders and cartridges (instead of black or white) on the red labels of model No. 2.1 was adopted for this particular case of LPGs, for practical reasons relating to the use of such cylinders (see annex 2).

GLOBAL HARMONIZATION OF SYSTEMS OF CLASSIFICATION AND LABELLING OF CHEMICALS

General

Informal documents : INF.24 and INF.26 (Chairman)
INF.50 and INF.51 (ILO)

112. The representative of ILO presented a progress report on the work on the global harmonization of systems of classification and labelling of chemicals (INF.50).

113. The Sub-Committee was also informed of the outcome of the ILO Working Group on Hazard Communication held in Washington, United States of America, from 1 to 4 November 1999 (INF.24).

114. Detailed information on various GHS issues may be obtained from the ILO website "http://www.ilo.org/private/protection/safework/ghs/" and on the OECD website "http://www.oecd/org/ehs/classify".

115. The Sub-Committee noted that during the next session of the ILO Working Group, a step 2 document (i.e. a proposal containing different options for harmonization) would be discussed. Several experts noted that, apart from the Chairman of the Committee and the secretariat, very few transport experts participate in the ILO Working Group sessions. They recommended that the transport sector should be better represented at the next session.

116. The expert from the United Kingdom said that he felt unconfortable with that suggestion as he considered that the Government representatives of the 12 countries participating in that work should express nationally coordinated positions and not sectoral interests. Furthermore, he felt that the possible options to be discussed would be rather broad and, as there were many difficulties to overcome, the outcome of this work would be fairly limited.

117. For hazard communication related to emergency response, it was recalled that there is no harmonized system of emergency response in the transport sector, although there is a harmonized system of hazard communication for emergency response purposes. It was felt that if transport emergency response issues were raised, including with respect to hazard communication, they should be directed to this Sub-Committee, especially proposals specifically intended to modify the existing system of hazard communication during transport.

118. The expert from Germany added that the application of hazard communication provisions currently intended for transport emergency response to other sectors like storage should be encouraged.

119. The Sub-Committee also noted the outcome of the 15th consultation of the IOMC Coordinating Group for the Harmonization of Chemical Classification Systems (Washington, 5 November 1999), in particular that the Coordinating Group had decided to continue working in 2001 when the Sub-Committee of Experts on the Globally Harmonized System of Classification and Labelling of Chemical (GHS Sub-Committee) should start working in accordance with resolution 1999/65, because it could not be expected that a globally harmonized system could be completed by the end of 2000.

120. Certain experts felt that duplication of work should be avoided and that there should not be two bodies dealing with the same issues. On the other hand, it was noted that the two first sessions of the new GHS Sub-Committee would probably be dedicated to organizational issues, and that it would be difficult to concentrate the ten meeting days allocated to the new Sub-Committee on GHS in a biennium in the second year (2002) as this would mean that there would be only five meeting days left to the Sub-Committee of Experts on the Transport of Dangerous Goods in that second year of the biennium which is traditionally much busier than the first year.

121. It was recalled that the agreement for the new arrangements was that the existing schedule of meetings should remain unchanged and that sessions of the various bodies should be held back to back every six months, that the total number of meeting days allocated to the reconfigured Committee session should not exceed three days per biennium while the number of meeting days that could be allocated to the new GHS Sub-Committee would have to be agreed by the Committee of Experts at its twenty-first session in December 2000 and should normally be a total of 8 to 10 days for the four sessions (i.e. 2 to 3 days per session) (ST/SG/AC.10/25, para. 114 (5)). Therefore, if the Sub-Committee on GHS did not use the meeting time allocated to it, this meeting time could be used by the Sub-Committee of Experts on the Transport of Dangerous Goods if needed, otherwise it would be lost.

122. The expert from the United Kingdom did not agree with this interpretation. He felt that there would be no duplication of work since the mandate for the GHS Sub-Committee was different from that of the IOMC Coordinating Group. Meeting times had been fixed for the biennium 2001-2002 by Resolution 1999/65 and it was not in the hands of the existing Committee of Experts on the Transport of Dangerous Goods to change that.

123. The observer from Austria said that he understood that certain functions of the existing Sub-Committee of Experts on the Transport of Dangerous Goods would be taken over by the new Sub-Committee on GHS, namely those related to listing and classification which is a standing item on the agenda of the Sub-Committee, and he expressed the wish that the role of the new Sub-Committee on GHS be clarified in that respect. It was agreed that the respective mandates of the two Sub-Committees were already clear in that respect and that whilst the Sub-Committee of Experts on GHS would set criteria, the Sub-Committee of Experts on the Transport of Dangerous Goods would determine application for transport.

Health hazards and hazards to the environment

Informal document : INF.25 (Chairman)

124. The Sub-Committee took note of the information provided by the Chairman on the work of OECD on the classification of mixtures, supplemented by explanations by the representative of OECD.

125. The Sub-Committee noted with satisfaction that reference was made to calculation methods recommended in the UN Recommendations on the Transport of Dangerous Goods. However, certain steps in the classification procedure seemed to be rather complicated and might not allow self-classification.

126. The representative of OECD said that the OECD proposal for classification of mixtures took account of all existing systems, and that certain existing systems - in particular the European Union system for classification of mixtures - were not as simple and straightforward as the UN system. He confirmed nevertheless that the mandate of the OECD group on classification of mixtures included the objective that the system should be as simple as possible and should allow self-classification. He also said that the classification methods being developed for the GHS were intended to limit testing to the extent possible, but that both testing and calculation methods would be provided for.

Documents: ST/SG/AC.10/C.3/1999/27 (United Kingdom)
ST/SG/AC.10/C.3/1999/67 (Belgium)
ST/SG/AC.10/C.3/R.707 (Argentina)

Informal documents : INF.31 and INF.38 (Argentina)
INF.42 (Germany)

127. Certain experts felt that it would not be appropriate to include provisions concerning classification of environmentally hazardous substances in the UN Model Regulations as long as the work of OECD for classification of mixtures had not been completed.

128. It was noted that the flow chart proposed in the documents did not correspond exactly to the criteria agreed by OECD, and that corrections would be necessary.

129. The representative of OECD said that it should be made clear that the title of Chapter 2.9 or the definition of substances which were dangerous to the environment by reason of aquatic pollution relate only to danger during transport, as the criteria developed by OECD were broader and would encompass situations other than transport.

130. Several delegations said that they considered that it would not be appropriate to develop provisions for the transport of environmentally hazardous substances only on the basis of criteria, because this would mean that any kind of substance, not presently subject to transport of dangerous goods regulations, would have to be tested for their potentially polluting properties. Therefore they preferred to restrict requirements applicable to aquatic pollutants to a list of substances which have been specifically identified as pollutants in accordance with the criteria.

131. Several experts opposed the United States' view raised at the previous session, reflected in the OECD proposal, that a distinction should be made between carriage in packagings/IBCs and carriage in tank-containers. They could agree that carriage in tank-vessels represented a special case, but for example under Annex III of the MARPOL Convention, all substances, whether carried in packagings or in tank-containers were treated the same.

132. Although the UN Recommendations (para. 10) stated clearly that many dangerous goods listed in Classes 1 to 9 are deemed, without additional labelling, as being environmentally hazardous, certain experts considered that the danger to the environment should be clearly identified in all classes, as relevant, as in the IMDG Code, because this was important in particular for stowage purposes in the case of maritime transport and emergency response purposes.

133. The observer from the Bahamas expressed concern at the fact that provisions for substances hazardous to the environment had been lacking in the UN Model Regulations for many years, although such provisions existed in maritime and inland transport regulations. He regretted that the adoption of such provisions had been repeatedly postponed pending adoption of globally harmonized criteria, which were not likely to be definitively available that soon. Substantial proposals prepared by experts and working groups in the past years were still pending because of this situation, and as a consequence there was no clear signal to the industry with respect to the regulatory direction. Therefore, he proposed to adopt at least a basic text to be annexed to the report for future inclusion in the Model Regulations, to stimulate the regulatory process, even if that text had to be modified in the next biennium.

134. The view of the observer from the Bahamas was largely shared by the experts of the Sub-Committee, and it was agreed to adopt a text based on the United Kingdom proposal ST/SG/AC.10/C.3/1999/27, placing the flow chart in square brackets and taking account of the Belgian editorial comments in the proposal ST/SG/AC.10/C.3/1999/67.

Physical hazards

Flammability of aerosols

135. This sub-item was discussed by the joint ILO/UN Working Group on the Harmonization of the Classification Criteria for Physical Hazards (see annex 5).

136. The representative of FEA said that FEA and CSMA would prepare three harmonized tests for classification of aerosols for inclusion in the Manual of Tests and Criteria. FEA will also present a set of test data to support their proposal for classification of aerosols as flammable or non-flammable.

Document : ST/SG/AC.10/C.3/1999/64 (Norway)

137. It was agreed that, according to discussions held during the UN/ILO Working Group session, changes to the criteria for flammability in special provision 63 would be necessary, but that these changes should be considered only at the next session when new proposals would be available.

Document : ST/SG/AC.10/C.3/1999/82 (United Kingdom)

138. There were divergent views as to whether aerosols containing non toxic propellant gas but toxic components should be considered as Division 2.3 aerosols or Division 2.2 aerosols with Division 6.1 subsidiary risk, but the Sub-Committee agreed to adopt the United Kingdom proposal based on the existing ICAO Technical Instructions (see annex 2).

OTHER BUSINESS

Application for consultative status by the Standing Committee of European Doctors (CP)

Informal document: INF.34

139. The Sub-Committee unanimously accepted the participation of CP in its work.

Establishment of the ISO/TC220 Technical Committee - Cryogenic vessels

Informal documents: INF.35 and INF.49 (ISO)

140. The Sub-Committee took note of the establishment of this new technical committee and confirmed its interest in an official link with TC220.

Seventeenth session of the ICAO Dangerous Goods Panel

Informal document: INF.40 (ICAO)

141. The Sub-Committee noted that the next edition of the ICAO Technical Instructions would be applicable on 1 January 2001 and that there was a problem of harmonization among the various transport modes between 1 January 2001 and the end of 2002 since the IMDG Code provided for transitional measures up to 31 December 2001, while the corresponding new provisions of RID/ADR would only enter into force on 1 July 2001 at earliest with a transitional period scheduled up to 31 December 2002.

Miscellaneous

Informal documents : INF.44, INF.45 and INF.46 (China)

142. As these informal documents related to new proposals, the secretariat was requested to issue them as official documents for the next session.

TRIBUTE TO MR. ALAN ROBERTS

143. The Sub-Committee was informed that Mr. A. Roberts, Chairman of the Committee from 1980 to 1988, would be retiring soon, after a 43-year career with the Government of the United States of America. Experts were invited to a reception organized by the Expert from the United States of America where they could express their appreciation of Mr. Robert's contribution to the work on the transport of dangerous goods over so many years and wished him a long and happy retirement.

PROGRAMME OF WORK

144. The Sub-Committee agreed that, for the next session, the working group on gas cylinders and MEGCs should be reconvened during the first week (3-7 July 2000). A working group on Class 1 emulsions should be convened on the first day of the second week (10 July 2000). One day would be needed for the UN/ILO Working Group on Physical Hazards (aerosols), and the whole Sub-Committee session would be held during two full weeks (3-14 July 2000).

145. The deadline for submission of documents is 14 April 2000.

ADOPTION OF THE REPORT

146. The following documents remain on the agenda for the next session:

ST/SG/AC.10/1998/5;
ST/SG/AC.10/1998/6

ST/SG/AC.10/C.3/1999/58 and -/Add.1
ST/SG/AC.10/C.3/1999/69
ST/SG/AC.10/C.3/1999/73
ST/SG/AC.10/C.3/1999/94

147. The Sub-Committee adopted the report on its seventeenth session and the annexes thereto.

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Annex 1

Report of the Working Group on Gas Receptacles and Multiple-Element Gas Containers (MEGCs)

General

1. The Working Group on Gas Receptacles and MEGC's met from 6 December to 9 December 1999 under the chairmanship of Mr. H. Puype (EIGA). Representatives of Australia, Canada, France, Germany, the United Kingdom, the United States of America, the European Liquefied Petroleum Gas Association (AEGPL), the Compressed Gas Association (CGA), the European Cylinder Makers Association (ECMA), the European Industrial Gases Association (EIGA) and the International Organization for Standardization (ISO) participated in the meeting.

2. The objective of the Working Group was to have a reading of document ST/SG/AC.10/C.3/32/Add.1 that presented the outcome of the discussions held during the first meeting of the Working Group taking into account informal documents INF.10 (United Kingdom), INF.14 (ISO), INF.17 (United States of America) and INF. Paper (no number) from AEGPL. The outcome of the discussions is reflected in more detail in the proposals 1 to 7 below. The consolidated list of proposed amendments to the Model Regulations is reproduced in ST/SG/AC.10/C.3/34/Add.1.

3. Due note was taken of the reconfirmation of the remit of the Working Group given by the plenary meeting:

(a) The ISO standards represent one way to comply with the requirements;

(b) Other standards can be incorporated.

Proposal 1: Inclusion of additional definitions in Part 1

4. Minor editorial changes have been agreed and incorporated in order to align with the definitions in ISO 10286 "gas cylinders - terminology".

5. The group confirmed the use of the term "pressure drum".

6. The group agreed to limit the capacity of bundles intended for the transport of division 2.3 gases to 1000 litres.

7. The expert from France will supply the experts from the United States of America and Canada and the representative of CGA with the pressure drum standard in preparation by the European Standardization Committee (CEN).

8. The reference to ISO for dimensions and corner fittings was deleted.

Proposal 2: Definitions and general provisions in Part 2

9. The Working Group confirmed that the definitions affect 4 gases only, namely 1982 tetrafluoromethane, compressed; 2451 nitrogen trifluoride, compressed; 1859 silicon tetrafluoride, compressed and 1008 boron trifluoride, compressed, where the proper shipping names will lose the qualification "compressed".

10. The group decides to maintain the phrase "gases with an LC_{50} lower than or equal to 200 ppm" and to drop the proposal for a definition of "highly toxic gases".

Proposal 3: Special packing provisions for dangerous goods of Class 2 in Chapter 4.1

11. The group decided to add a reference to ISO 11114-1 and ISO 11114-2 in 4.1.6.1.1 for the purpose of selecting materials of pressure receptacles and their closures.

12. The group addressed the issue of pressure receptacles having contained corrosive liquids and changed to gas service.

13. The requirements of ISO 11117: 1998 related to valve protection by caps, shrouds or guards were made compulsory.

14. The requirements of the appendix of ISO 10297 were proposed for consideration for the testing of unprotected valves.

15. The group reworded the restrictions on transport and filling. It was agreed that the restriction for pressure receptacles beyond their prescribed inspection periods should apply to filling only.

16. The issue of the use of pressure-relief devices (PRD) will be dealt with after the examination of the risk assessments and statistical data. The expert from the United States of America will review all available statistical data and risk analyses before making a recommendation. AEGPL, CGA and EIGA will provide available statistical data and risk analyses and submit their positions. There was already agreement on a prohibition for toxic gases with an LC_{50} lower than 200, and mandatory with bursting disc for CO2 and N2O. If PRD are mandatory the requirements shall include the type and the sizing of the PRD's. The expert from the United States of America indicated that, when PRD's are used to protect pressure receptacles in a fire, performance tests should be specified. CGA offered publications for consideration (C14, C12 and S-1.1). The expert from France pointed out that the fitting of PRD's for CO2 and N2O are for overfilling protection and do not need any sizing.

17. The formulae in P200 for the determination of the filling ratios were accepted.

18. The request from the United Kingdom to incorporate climatic zones was not retained; the provisions in the UN Model Regulations for multimodal transport do not prevent modal regulations from adopting less stringent temperature criteria.

19. The group noted the request from the Sub-Committee to include a new position for acetylene undissolved. Germany will provide a special provision in accordance with their proposal ST/SG/AC.10/C.3/1999/30/Rev.1.

20. Acetylene cylinders with non-monolithic masses have not been retained for UN certified pressure receptacles.

21. The group agreed to add special provision "m" to butane, propane, isobutane. The expert from Germany will provide, for consideration at the next meeting the conditions that German authorities require to approve the 15 years inspection and testing period for LPG cylinders in order to lift the brackets.

22. Special provision "n" which applies to toxic gases with a LC_{50} lower than 200 ppm has been put between brackets. The expert from France will provide a table with minimum wall thicknesses for different materials as required in the ISO standards for construction, for the group to decide at next meeting if note "n" could become redundant.

23. Special provision "o" related to hydrogen embrittlement has been allocated to the list of gases in the table in accordance with the provisions of ISO 11114-1.

24. The expert from the United States of America was in general agreement with the data in the table of P200. After liaising with the Federal Institute for Materials Research and Testing (BAM) and the Gases Industry, he will finalize his validation for the next meeting.

25. At the request of the expert from Canada, P201 will be aligned with the existing UN provisions.

26. The expert from France will issue to Australia, Canada and CGA the CEN standards 1251-1, -2 -3 related to cryogenic receptacles that eventually will be submitted for consideration by the newly formed ISO TC220. The expert from Canada will circulate their standard to Australia, Germany, United Kingdom, United States of America and EIGA. CGA will review the ICAO packing instructions on P203 and make proposals. The whole instruction P203 remains between brackets.

27. After examination of the data supplied by the expert from the United States of America, the periodic inspection for gases of Division 2.3 with a subsidiary corrosivity risk was conditionally fixed at 5 years. The expert from Germany will propose a maximum water content in the gas.

Proposal 4: Requirements for the construction and testing of pressure receptacle for gases

28. The group agreed to reformat the requirements of Chapter 6.2 into:

(a) a first section detailing the general requirements applicable to all pressure receptacles;

(b) a second section providing the requirements for UN certified pressure receptacles incorporating the relevant agreed upon standards;

(c) a third section devoted to the requirements for non-UN certified pressure receptacles (receptacles that are not designed, constructed and tested to standards listed in section 2). This section would be used to develop missing standards in section 2.

29. A number of provisions have been accepted by the group, editorial changes made and other provisions have been put between square brackets pending further discussion.

30. AEGPL will circulate copies of EN standards to the Working Group members for possible future reference in section 2 including a rationale for the reference to these standards.

31. The Working Group reviewed the situation of several ISO standards and accepted them for potential reference in section 2.

Proposal 5: proposed text for Part 5

32. The proposal was accepted by the group.

Proposal 6: proposed text for MEGC's in Part 4

33. The restrictions for transport and filling have been aligned with those for the pressure receptacles.

Proposal 7: Requirement for the design, construction, inspection and testing of multiple-element gas containers (MEGCs) intended for the transport of non-refrigerated gases

34. Redundant definitions have been deleted.

35. The requirement for the quick closing device has been deleted since no such equipment exists for this type of container.

36. Reference was made to the relevant provisions of the EN standard for the construction of the manifold.

37. CGA has offered to review all sections related to the pressure-relief devices and will make a proposal for consideration at the next meeting.

38. It was decided to delete the references to ISO 668 and 1161 since dimensions and corner fittings are not to be made mandatory.

39. Editorial changes were made to clarify the requirements for periodic inspection of the MEGC as a unit and its elements.

40. The Working Group agreed to delete a number of unnecessary markings on the marking plate.

41. The Working Group will consider the outcome of the meeting of ISO TC58/WG9 related to the Technical Report on Quality Assurance for cylinders.

* * *

Annex 2

Draft amendments to the Model Regulations on the Transport of Dangerous Goods (Texts adopted by the Sub-Committee)

(Refer to ST/SG/AC.10/C.3/34/Add.2)

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Annex 3

**Transport of dangerous goods documentation
Draft revised Chapter 5.4 and Sub-Section 3.1.2.6 proposed
by the drafting group on documentation
(see para. 38 of the report)**

CHAPTER 5.4

DOCUMENTATION

Introductory note

Note: *These Regulations do not preclude the use of electronic data processing (EDP) and electronic data interchange (EDI) transmission techniques as an aid to paper documentation.*

5.4.1 Dangerous goods transport documentation

5.4.1.1 *General*

Except as otherwise provided, the consignor who offers dangerous goods for transport shall describe the dangerous goods on a transport document and provide additional information and documentation as specified in these Regulations.

5.4.1.2 *Form of the transport document*

A dangerous goods transport document may be in any form, provided it contains all of the information required by these Regulations.

5.4.1.2.1 If both dangerous and non-dangerous goods are listed in one document, the dangerous goods shall be listed first, or otherwise be emphasized.

5.4.1.2.2 *Continuation page*

A dangerous goods transport document may consist of more than one page, provided pages are consecutively numbered.

5.4.1.2.3 The information on a dangerous goods transport document shall be easy to identify, legible and durable.

5.4.1.2.4 *Example of a dangerous goods transport document*

The form shown in figure (xx) is an example of a dangerous goods transport document.

5.4.1.3 ***Consignor, consignee and date***

The name and address of the consignor and the consignee of the dangerous goods shall be included on the dangerous goods transport document. The date the dangerous goods transport document or an electronic copy of it was prepared or given to the initial carrier shall be included.

5.4.1.4. ***Information required on the dangerous goods transport document***

5.4.1.4.1 *Dangerous goods description*

The dangerous goods transport document shall contain the following information for each dangerous substance, material or article offered for transport:

(a) the proper shipping name, as determined according to 3.1.2;

(b) the class or, when assigned, the division of the goods, including for Class 1, the compatibility group letter. [Any assigned subsidiary hazard class or division number(s) shall be entered following the numerical hazard class or division and shall be enclosed in parenthesis. The words "Class" or "Division" may be included preceding the primary or subsidiary hazard class or division numbers];

(c) the UN number preceded by the letters "UN";

(d) where assigned, the packing group for the substance or article which may be preceded by "PG" (e.g."PG II").

5.4.1.4.2 *Sequence of the dangerous goods description*

The dangerous goods description specified above shall be shown in sequence with no additional information interspersed, except as provided in these Regulations. An example of a dangerous goods description is:

"ALLYL ALCOHOL 6.1 (3) UN 1098 I"

***Note**: In addition to the requirements of these Regulations, other elements of information may be required by the competent authority or for certain modes of transport (e.g. flash point or flash point range in °C c.c. for sea transport). Unless permitted or required by these Regulations, additional information shall be placed after the dangerous goods description.*

5.4.1.4.3 *Information which supplements the proper shipping name in the dangerous goods description*

The proper shipping name in the dangerous goods description shall be supplemented as follows:

(a) *Technical names for "n.o.s." and other generic descriptions*. Proper shipping names that are assigned SP 274 in column (6) of the Dangerous Goods List shall be supplemented with their technical or chemical group names as described in 3.1.2.6.

(b) *Empty uncleaned packagings and tanks*. Empty means of containment (including packagings, IBCs, portable tanks, road transport tanks and railway transport tanks) which contain the residue of dangerous goods of other than Class 7 shall be described as such by, for example, placing the words "**EMPTY UNCLEANED**" or "**RESIDUE LAST CONTAINED**" before or after the proper shipping name;

(c) *Wastes*. For waste dangerous goods (other than radioactive wastes) that are being transported for disposal, or for processing for disposal, the proper shipping name shall be preceded by the word "**WASTE**", unless this is already a part of the proper shipping name;

(d) *Elevated temperature materials*. If the proper shipping name of a substance that is transported or offered for transport in a liquid state at a temperature equal to or exceeding 100 °C, or in a solid state at a temperature equal to or exceeding 240 °C, does not convey the elevated temperature condition (for example, by using the term "**MOLTEN**" or "**ELEVATED TEMPERATURE**" as part of the shipping name), the word "**HOT**" shall immediately precede the proper shipping name on the dangerous goods transport document.

5.4.1.5 ***Information required in addition to the dangerous goods description***

In addition to the dangerous goods description the following information shall be included after the dangerous goods description on the dangerous goods transport document

[5.4.1.5.1 *Total quantity of dangerous goods*

Except for empty packagings, the total quantity of dangerous goods covered by the description (by volume or mass as appropriate) of each item of dangerous goods bearing a different proper shipping name, UN number or packing group shall be included. For Class 1 dangerous goods the quantity shall be the net explosive mass. The number of packagings and a description of each packaging shall also be indicated. Abbreviations may be used to specify the unit of measurement for the total quantity.]

5.4.1.5.2 *Limited quantities*

When dangerous goods are transported according to the exceptions for dangerous goods packed in limited quantities provided for in Column 7 of the Dangerous Goods List and Chapter 3.4, the words "**limited quantity**" or "**LTD QTY**" shall be included.

5.4.1.5.3 *Salvage packagings*

For dangerous goods transported in salvage packagings, the words **"SALVAGE PACKAGE"** shall be included.

5.4.1.5.4 *Temperature stabilized substances*

If the proper shipping name of a substance that is transported or is offered for transport includes the word "STABILIZED", or "STABILIZED" is added to the proper shipping name (see 3.1.2.6), when stabilization is by means of temperature control, the control and emergency temperatures [(see 7.1.4.3.1)] shall be indicated in the transport document, as follows:

"Control temperature: ....°C Emergency temperature: .... ° C".

5.4.1.5.5 *Self-reactive substances and organic peroxides*

For self-reactive substances of Division 4.1 and for organic peroxides that require temperature control during transport, the control and emergency temperatures (see 7.1.4.3.1)shall be indicated on the dangerous goods transport document, as follows: **"Control temperature: ....°C Emergency temperature: .... °C".**

5.4.1.5.5.1 When for certain self-reactive and related substances of Division 4.1 and organic peroxides of Division 5.2 the competent authority has permitted the "EXPLOSIVE" subsidiary risk label (model No. 1) to be dispensed with for the specific package, a statement to this effect shall be included.

5.4.1.5.5.2 When organic peroxides and self-reactive substances are transported under conditions where approval is required (for organic peroxides see 2.5.3.2.5, 4.1.7.2.2, 4.2.1.13.1 and 4.2.1.13.3; for self-reactive substances see 2.4.2.3.2.4 and 4.1.7.2.2), a statement to this effect shall be included in the dangerous goods transport document. A copy of the classification approval and conditions of transport for non-listed organic peroxides and self-reactive substances shall be attached to the dangerous goods transport document.

5.4.1.5.5.3 When a sample of an organic peroxide (see 2.5.3.2.5.1) or a self-reactive substance (see 2.4.2.3.2.4(b)) is transported, a statement to this effect shall be included in the dangerous goods transport document.

5.4.1.5.6 *Infectious substances*

[5.4.1.5.6.1 The full address of the consignee shall be shown on the document, together with the name of a responsible person and his telephone number.]

[5.4.1.5.6.2 The transport documents shall show the number of the flight or train, its date and the name(s) of the airport(s) or station(s) of transshipment].

[5.4.1.5.6.3 If the substance is perishable, appropriate warnings shall appear on the transport document, for instance: **"Keep cool, between +2°C and +4°C"** or **"Keep frozen"** or **"Do not freeze".]**

5.4.1.5.7 *Radioactive materials*

5.4.1.5.7.1 The following information shall be included for each consignment of Class 7 material, as applicable, in the order given:

(a) The name or symbol of each radionuclide or, for mixtures of radionuclides, an appropriate general description or a list of the most restrictive nuclides;

(b) A description of the physical and chemical form of the material, or a notation that the material is special form radioactive material or low dispersible radioactive material. A generic chemical description is acceptable for chemical form;

(c) The maximum activity of the radioactive contents during transport expressed in units of becquerels (Bq) with an appropriate SI prefix (see 1.2.2.1). For fissile material, the mass of fissile material in units of grams (g), or appropriate multiples thereof, may be used in place of activity;

(d) The category of the package, i.e. I-WHITE, II-YELLOW, III-YELLOW;

(e) The transport index (categories II-YELLOW and III-YELLOW only);

(f) For consignments including fissile material other than consignments excepted under 6.4.11.2, the criticality safety index;

(g) The identification mark for each competent authority approval certificate (special form radioactive material, low dispersible radioactive material, special arrangement, package design, or shipment) applicable to the consignment;

(h) For consignments of packages in an overpack or freight container, a detailed statement of the contents of each package within the overpack or freight container and, where appropriate, of each overpack or freight container in the consignment. If packages are to be removed from the overpack or freight container at a point of intermediate unloading, appropriate transport documents shall be made available;

(i) Where a consignment is required to be shipped under exclusive use, the statement "EXCLUSIVE USE SHIPMENT"; and

(j) For LSA-II, LSA-III, SCO-I and SCO-II, the total activity of the consignment as a multiple of A_2.

5.4.1.5.7.2 The transport document shall include a statement regarding actions, if any, that are required to be taken by the carrier. The statement shall be in the languages deemed necessary by the carrier or the authorities concerned, and shall include at least the following points:

(a) Supplementary requirements for loading, stowage, carriage, handling and unloading of the package, overpack or freight container including any special stowage provisions for the safe dissipation of heat (see 7.1.6.3.2), or a statement that no such requirements are necessary;

(b) Restrictions on the mode of transport or conveyance and any necessary routing instructions;

(c) Emergency arrangements appropriate to the consignment.

5.4.1.5.7.3 The applicable competent authority certificates need not necessarily accompany the consignment. The consignor shall make them available to the carrier(s) before loading and unloading.

5.4.1.6 *Certification*

5.4.1.6.1 The dangerous goods transport document shall include a certification or declaration that the consignment is acceptable for transport and that the goods are properly packaged, marked and labelled, and in proper condition for transport in accordance with the applicable regulations. The text for this certification is:

> "I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labelled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations."

The certification shall be signed and dated by the consignor. Facsimile signatures are acceptable where applicable laws and regulations recognize the legal validity of facsimile signatures.

5.4.1.6.2 If the dangerous goods documentation is presented to the carrier by means of electronic data processing (EDP) or electronic data interchange (EDI) transmission techniques, the signature(s) may be replaced by the name(s) (in capitals) of the person authorized to sign.

5.4.2 Container packing certificate

5.4.2.1 When dangerous goods are loaded into a freight container 1/, those responsible for supervising this operation 2/ shall provide a "container packing certificate" certifying that the operation has been carried out in accordance with the following conditions, and identifying the person signing the certificate:

(a) The container is clean, dry and apparently fit to receive the goods;

(b) Packages which shall be segregated, i.e. in different freight containers, have not been loaded together in the container;

(c) All packages have been externally inspected for damage, and only sound packages loaded;

(d) All goods have been properly loaded and, where necessary, adequately braced with securing material to suit the mode(s) of transport for the intended journey;

(e) Goods loaded in bulk have been evenly distributed within the container;

(f) For consignments including goods of Class 1 other than Division 1.4, the container is structurally serviceable in accordance with 7.1.3.2.1;

(g) The container and packages are properly marked, labelled and placarded in accordance with this Part; and

(h) A certificate or declaration, as indicated in 5.4.1.1.8, has been received for each dangerous goods consignment loaded in the container.

5.4.2.2 The functions of the document required in 5.4.1.3.1 and of the container packing certificate required in 5.4.2.1 may be incorporated in a single document. If these functions are incorporated into a single document, the inclusion of a signed declaration that the packing of the container has been carried out in accordance with the applicable modal regulations together with the identification of the person signing the declaration will suffice. If these functions are not incorporated into a single document, the relevant documents shall be attached one to the other.

1/ *For the purposes of these provisions the term "freight container" is limited to transport units meeting the definition of "container" in the International Convention for Safe Containers (CSC) signed at Geneva on 2 December 1972. The term does not include a "portable tank" as defined in 1.2.1 or a freight container being used to transport radioactive material and which complies with the IAEA requirements for freight containers.*

2/ *Guidelines for use in practice and in training for loading goods in freight containers or vehicles have been drawn up by the International Maritime Organization (IMO) and the International Labour Organization (ILO) and have been published by IMO (IMO/ILO Guidelines for Packing Cargo in Freight Containers or Vehicles).*

5.4.3 Emergency response information

For consignments for which a dangerous goods transport document is required by these Regulations, appropriate information shall be immediately available at all times for use in emergency response to accidents and incidents involving dangerous goods in transport. The information shall be available away from the packages containing the dangerous goods and immediately accessible in the event of an accident or incident. Methods of compliance include:

(a) Appropriate entries in the transport document; or

(b) Provision of a separate document such as a safety data sheet; or

(c) Provision of a separate document, such as the ICAO "Emergency Response Guidance for Aircraft Incidents Involving Dangerous Goods" or the IMO "Emergency Procedures for Ships Carrying Dangerous Goods" and "Medical First Aid Guide in Accidents Involving Dangerous Goods", for use in conjunction with the transport document.

CHAPTER 3.1 (Amendments)

3.1.2.6 *Generic or "not otherwise specified" (N.O.S) names*

3.1.2.6.1 Generic and "not otherwise specified" proper shipping names that are assigned SP 274 in column (6) of the Dangerous Goods List shall be supplemented with their technical or chemical group names unless a national law or international convention prohibits its disclosure if it is a controlled substance. For explosives of Class 1, the dangerous goods description may be supplemented by additional descriptive text to indicate commercial or military names. Technical and chemical group names shall be entered in parentheses immediately following the proper shipping name. An appropriate modifier, such as "contains" or "containing" or other qualifying words such as `mixture', `solution', etc. and the percentage of the technical constituent may also be used. For example: "Flammable liquids, n.o.s. (contains Xylene and Benzene), 3, UN 1993, PG II".

3.1.2.6.1.1 The technical name shall be a recognized chemical or other name currently used in scientific and technical handbooks, journals and texts. Trade names shall not be used for this purpose. In the case of pesticides, only ISO common name(s), other name(s) in the WHO Recommended Classification of Pesticides by Hazard and Guidelines to Classification, or the name(s) of the active substance(s) may be used.

3.1.2.6.1.2 When a mixture of dangerous goods is described by one of the "N.O.S." or "generic" entries to which Special Provision 274 has been allocated in the Dangerous Goods List, not more than the two constituents which most predominantly contribute to the hazard or hazards of a mixture need to be shown, excluding controlled substances when their disclosure is prohibited by national law or international convention. If a package containing a mixture is labelled with any subsidiary risk label, one of the two technical names shown in parentheses shall be the name of the constituent which compels the use of the subsidiary risk label.

3.1.2.6.1.3 Examples illustrating the selection of the proper shipping name supplemented with the technical name of goods for such N.O.S. entries are:

UN 2003 METAL ALKYL, N.O.S. (trimethylgallium)
UN 2902 PESTICIDE, LIQUID, TOXIC, N.O.S. (drazoxolon).

* * *

Annex 4

Texts provisionally adopted for ammonium nitrate entries
(see para. 48 of the report)

Delete the following entries:

UN 0223, UN 2068, UN 2069, UN 2070, UN 2072

Amend existing entries for UN Nos 1942, 2067 and 2071 to read as follows:

UN No	Class	Name and Description	Special Provision
1942	5.1	AMMONIUM NITRATE, with not more than 0.2% total combustible material, including any organic substance, calculated as carbon to the exclusion of any other added substance	[AAA]
2067	5.1	AMMONIUM NITRATE BASED FERTILIZER	186 [AAA], BBB
2071	9	AMMONIUM NITRATE BASED FERTILIZER	186193

***NOTE**: The final version for the columns of Name and Description and Special provisions as well as the text of the special provisions 193, AAA, BBB (which will be derived from the merging of special provisons BBB and CCC of ST/SG/AC.10/C.3/1999/59) will be discussed at the next session.*

The existing description in lower case for UN 0222 should be discussed in the light of decisions to be taken for new special provision AAA.

(Ref. doc. ST/SG/AC.10/C.3/1999/59)

* * *

Annex 5

Report of the United Nations/ILO Working Group on the Harmonization of the Classification Criteria for Physical Hazards

1. The United Nations/ILO Working Group on the Harmonization of Classification Criteria for Physical Hazards met on 13 December 1999 under the chairmanship of Mr. G. Oberreuter (Germany).

2. The representatives of the following countries and organizations took part in this session of the Working Group: Argentina, Australia; Austria; Bahamas; Belgium; Brazil; Canada; China; Czech Republic; France; Germany; Italy; Japan; Mexico; Netherlands; Norway; Russian Federation; South Africa; Spain; Sweden; Switzerland; United Kingdom; United States of America; International Labour Office (ILO); European Commission (EC); Chemicals Specialities Manufacturers Association (CSMA); Federation of European Aerosol Associations (FEA); Hazardous Materials Advisory Council (HMAC) and the Programme national de prévention de lutte et d'assistance humanitaire aux victimes des catastrophes naturelles (PRONAPLUCAN).

General

Document : ST/SG/AC.10/C.3/28/Add.3

3. It was recalled that the United Nations/ILO Working Group on the Harmonization of the Classification Criteria for Physical Hazards had nearly completed its work in December 1997, except for criteria for aerosol flammability (ST/SG/AC.10/C.3/28/Add.3, paras. 27-34) and that the Committee of Experts on the Transport of Dangerous Goods had agreed that the UN/ILO Working Group should be reconvened during the seventeenth session of the Sub-Committee (ST/SG/AC.10/25, paras. 121-122) to discuss proposals that FEA intended to prepare in co-operation with non-European industrial associations concerned with aerosols.

Documents: ST/SG/AC.10/C.3/1999/64 (Norway)
ST/SG/AC.10/C.3/1999/68, -/Add.1 and -/Add.2 (FEA)
ST/SG/AC.10/C.3/1999/76 (CSMA)

Informal documents : INF.22 (FEA)
INF.27 (France)
INF.41 (Germany)
INF.47 (CSMA)

4. The Working Group noted that the Chemical Specialities Manufacturers Association (CSMA) of the United States of America which is a national non-governmental organization not in consultative status either with the Economic and Social Council or the Committee of Experts on the Transport of Dangerous Goods had requested to be consulted and to participate in the debate, and had prepared a proposal different from that of FEA. This request was supported by the representative of the United States and, as there were no objections from any delegations, accepted by the Working Group.

5. In accordance with the guidance provided at the previous session, FEA proposed classification criteria based on FEA test methods (Ignition distance test (FEA 609), Enclosed space test (FEA 610) and Foam test (FEA 608)) applicable for determining the flammability of aerosols in the context of consumer use on the one hand and of transport on the other hand. For consumer use, all aerosols with flammable contents were deemed to be flammable, except those with flammable contents not more than 25% by mass and not more than 150 g, which could be tested to determine whether they could be considered as non-flammable. For transport, the same applied, except that aerosols having flammable contents below 7% by mass were regarded de facto as non-flammable and the criteria for aerosols with flammable contents between 7% and 25% were different from that for transport.

6. For transport regulations, this implied considering all aerosols with flammable contents above 7% as flammable except for those with flammable contents between 7% and 25% where non-flammability could be proved by testing. At present, aerosols with flammable contents below 45% and 150 g are considered as non-flammable.

7. The representative of FEA explained that the 25% flammable contents higher limit above which aerosols would be considered as flammable replaced the 45% limit presently used for transport (see special provision 63 in Chapter 3.3 of the UN Model Regulations), because experience with new propellants substituting the now banned CFCs has shown that this limit was more appropriate. The representative of CSMA did not agree as he said that many products with flammable contents between 25% and 45%, when tested, would not meet the flammability criteria.

8. The lower limit of 7% under which aerosols would be considered as non-flammable under transport regulations was also questioned, as no data had been presented. Furthermore, as aerosols with flammable contents below 7% would have to be tested for being considered as non-flammable under consumer use regulations, certain delegations wondered whether it was really justified to distinguish the use of aerosols and their transport, as the tests performed on these aerosols in the context of consumer use could be used at the same time to determine the possible flammabillity according to transport criteria. Therefore, they would be in favour of using one set of criteria only for all applications.

9. The representative of France pointed out that the same tests would have to be carried out for transport and for consumer use, but that during the closed drum test an additional value would have to be measured (explosion density) which was more appropriate for transport classification.

10. Certain delegations objected to the idea that tests would have to be performed on any aerosols with flammable contents below 25% to prove their non-flammability, as they considered that aerosols with very low flammable contents (e.g. 0.5%, 1% or any other limit to be determined on the basis of test data available) would be considered as non-flammable without testing.

11. The representative of Italy said that the question of cut-off values would have to be addressed also in the context of the global harmonization of classification criteria for mixtures.

12. The CSMA proposed that aerosols with flammable contents of more than 45% could be assumed flammable without testing or alternatively could be classified not flammable based on the drum test and ignition distance or foam test. In addition, aerosols with flammable contents below 45% (i.e. not presently subject to transport regulations) would be subject to an Ignition distance test or Foam test to determine whether they are flammable or not.

13. For this proposal, it was noted that the flash point limit proposed for defining flammable constituants was 60 °C, while this limit was 100 °C in existing transport regulations. It was agreed that "flammable contents" should mean all substances defined as flammable under the globally harmonized system, i.e. flammable solids, liquids with a flash point not more than 93 °C and flammable gases.

14. The representative of CSMA proposed that aerosols with more than 85% flammable contents should be classified as extremely flammable. The representative of France had also proposed criteria for determining hazard levels (INF.27) (Extremely flammable, highly flammable, flammable), and he said that communication of these hazard levels to consumers would be an incentive for the industry to produce low hazard level aerosols.

15. The representative of the United States agreed that extreme flammability should be identified, in particular for consumer safety purposes. He considered that detailed fire-fighting aspects linked to risk assessment in case of storage of large quantities of aerosols should be avoided in hazard classification.

16. Several other delegations were not convinced of the need for determining hazard levels.

17. With regard to the CSMA proposed classification flow chart, it was noted that aerosols with flammable contents below 45% were subject to the ignition distance test or to the foam test only, but not to the drum test. Therefore the question was asked whether it could be assumed that such aerosols passing the ignition distance test or the foam test would also pass the drum test. The representative of FEA said that this could not be assumed.

18. It was underlined that the FEA Enclosed Space Test and CSMA Drum test were more appropriate to determine flammability for transport and storage purposes (i.e. closed aerosols dispensers) while the Flame ignition distance test and Foam test were more suitable for determining the flammability hazard during the use of aerosols. The Netherlands wished that storage aspects be taken into account in developing criteria for flammability of aerosols.

19. After long discussions on the above subjects, the Chairman concluded that the Working Group could not reach a consensus on all issues, and that the only agreed principles were that

(a) all aerosols containing flammable components meeting criteria for flammability (i.e. flammable solids or gases and liquids with a flash point not more than 93 °C) should be considered for flammability and a test regime should be applied;

(b) three tests (Ignition distance test, Enclosed space test and Foam test) are relevant for determining flammability of aerosols, and FEA and CSMA should prepare a joint proposal for test methods to be included in the Manual of Tests and Criteria, as existing CSMA and FEA tests are quite similar;

(c) if positive results are obtained in any of the test, the aerosols shoud be classified flammable.

20. The representative of FEA expressed his disappointment at this conclusion, because he considered that FEA had developed appropriate harmonization proposals on the basis of the request of the working group, in consultation with non-European organizations, and that all elements had been provided for a sound compromise.

21. The Working Group agreed that another meeting at the next session would be needed to reach a better compromise, provided that new proposals are developed by interested delegations.